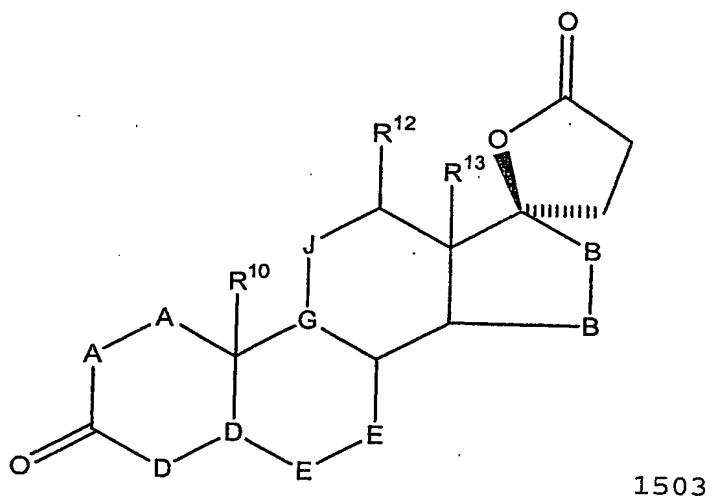


WHAT IS CLAIMED IS:

1. A process for preparing a 17-spirolactone steroid compound or a corresponding open lactone salt, the process comprising:

carbonylating a steroid substrate wherein the substrate is substituted at the C-17 position with a first substituent selected from the group consisting of hydroxy and protected hydroxy; and a second substituent selected from the group consisting of alkenyl and alkynyl.

2. A process for the preparation of a compound corresponding to the Formula 1503:



or the corresponding 17-open lactone or open lactone salt;

wherein

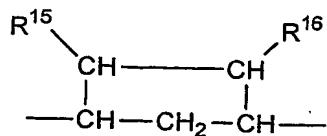
R^{10} , R^{12} and R^{13} are independently selected from the group consisting of hydrogen, halo, haloalkyl, hydroxy, alkyl, alkoxy, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, cyano and aryloxy;

-A-A- represents the group $-CHR^1-CHR^2-$ or $-CR^1=CR^2-$;

where R^1 and R^2 are independently selected from the group consisting of hydrogen, halo, hydroxy, alkyl, alkoxy, acyl,

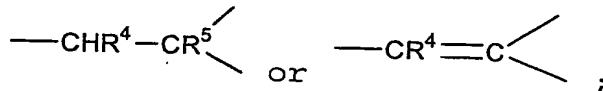
hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy or R¹ and R² together with the carbons of the steroid nucleus to which they are attached form a (saturated) cycloalkylene group;

-B-B- represents the group -CHR¹⁵-CHR¹⁶- , -CR¹⁵=CR¹⁶- or an α- or β-oriented group:



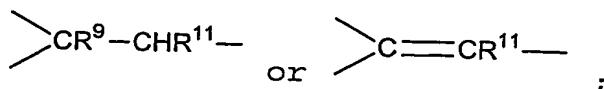
where R¹⁵ and R¹⁶ are independently selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano, and aryloxy;

-D-D- represents the group



where R⁴ and R⁵ are independently selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy or R⁴ and R⁵ together with the carbons of the steroid backbone to which they are attached form a cycloalkyl group;

-G-J- represents the group

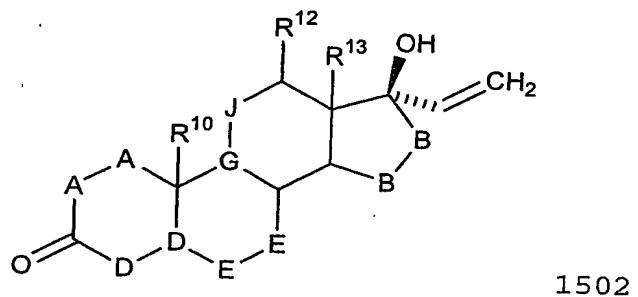


where R⁹ and R¹¹ are independently selected from the group consisting of hydrogen, hydroxy, protected hydroxy, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy or R⁹ and R¹¹ together form an epoxy group;

-E-E- represents the group -CHR⁶-CHR⁷- or -CR⁶=CR⁷-, wherein R⁶ is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxy carbonyl, acyloxyalkyl, cyano and aryloxy, and R⁷ is selected from the group consisting of hydrogen, hydroxy, protected hydroxy, halo, alkyl, cycloalkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxy carbonyl, acyloxyalkyl, cyano, aryloxy, heteroaryl, heterocycl, acetylthio, furyl and substituted furyl;

the process comprising:

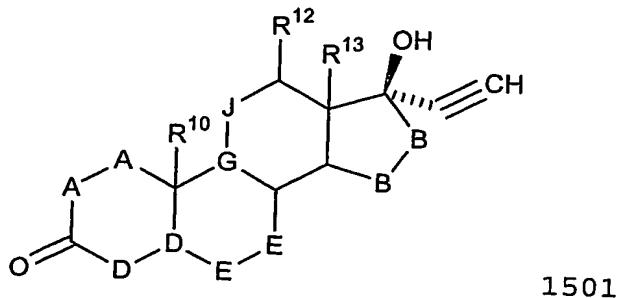
carbonylating a 17-vinyl-17-hydroxy steroid compound of Formula 1502:



wherein R¹⁰, R¹², R¹³, -A-A-, -B-B-, -D-D-, -G-J- and -E-E- are as defined above.

3. A process as set forth in claim 2 wherein the process further comprises:

preparing the compound of Formula 1502 by reducing the 17-ethynyl group of a compound of Formula 1501 to a 17-vinyl group, said compound of Formula 1501 having the structure:



where the substituents R¹⁰, R¹², R¹³, -A-A-, -B-B-, -D-D-, -G-J- and -E-E- are as defined above in Formula 1503.

4. A process as set forth in claim 3 wherein said compound of Formula 1501 is contacted with a source of hydrogen in a hydrogenation reaction zone, thereby reducing the 17-ethynyl group and yielding an intermediate comprising the 17-vinyl compound corresponding to Formula 1502; and

the derivative of Formula 1502 is contacted with a source of carbon monoxide and a carbonylation catalyst in a carbonylation reaction zone to yield the product of Formula 1503.

5. A process as set forth in claim 4 wherein said compound of Formula 1501 is simultaneously contacted with a source of hydrogen, a source of carbon monoxide and a catalyst system effective for reducing the 17-ethynyl group of the compound of Formula 1501 to a 17-vinyl group and for carbonylating the resulting derivative of Formula 1502 *in situ* to convert the 17-hydroxy-17-vinyl structure thereof to a 17-spirobutyrolactone structure.

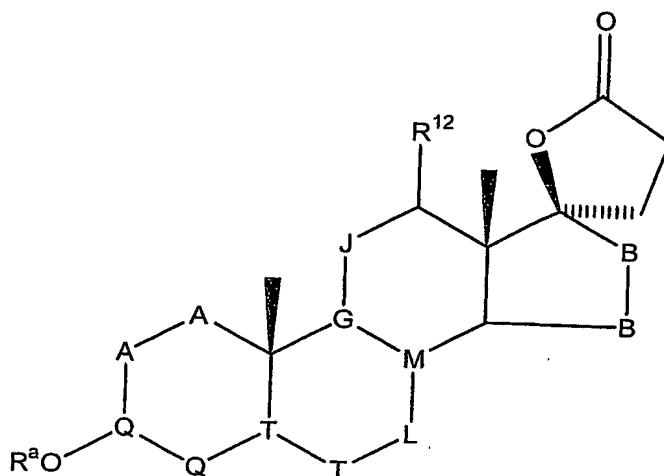
6. A process as set forth in claim 3 comprising:
contacting said compound of Formula 1501 with a source of hydrogen and a hydrogenation catalyst in a liquid reaction medium comprising a solvent, thereby producing a hydrogenation reaction mixture comprising a hydrogenation reaction solution comprising said intermediate of Formula 1502 in said solvent; and

mixing said hydrogenation reaction solution or a concentrate thereof with water to produce a liquid crystallization medium in which the solubility of said

compound of Formula 1502 is lower than the solubility thereof in said solvent alone; and

crystallizing said compound of Formula 1502.

7. A process for the preparation of a compound corresponding to the Formula 2503:



2503

or the corresponding 17-open lactone or open lactone salt;

wherein

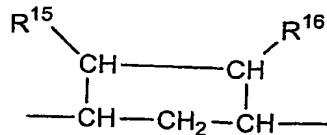
R^3 is selected from the group consisting of hydrogen, hydroxy, alkoxy, hydroxyalkyl, alkoxyalkyl and hydroxycarbonyl;

R^{10} , R^{12} and R^{13} are independently selected from the group consisting of hydrogen, halo, hydroxy, alkyl, alkoxy, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, cyano and aryloxy;

-A-A- represents the group $-\text{CHR}^1-\text{CHR}^2-$ or $-\text{CR}^1=\text{CR}^2-$;

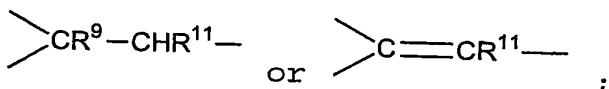
where R^1 and R^2 are independently selected from the group consisting of hydrogen, halo, hydroxy, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy or R^1 and R^2 together with the carbons of the steroid nucleus to which they are attached form a (saturated) cycloalkylene group;

-B-B- represents the group -CHR¹⁵-CHR¹⁶-, -CR¹⁵=CR¹⁶- or an α - or β -oriented group:



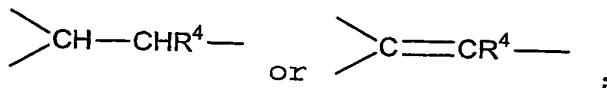
where R¹⁵ and R¹⁶ are independently selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy;

-G-J- represents the group



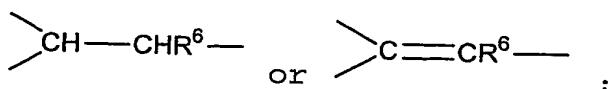
where R⁹ and R¹¹ are independently selected from the group consisting of hydrogen, hydroxy, protected hydroxy, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy;

-Q-Q- represents the group



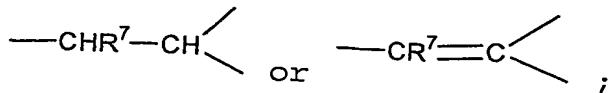
where R⁴ is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy;

-T-T- represents the group



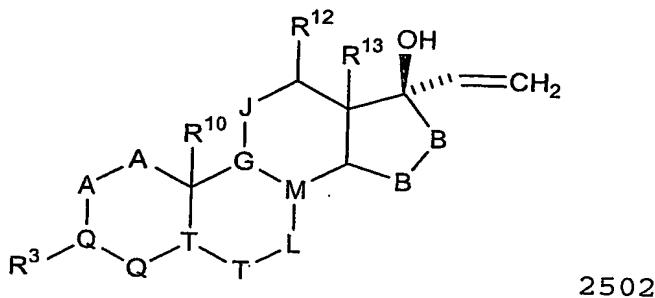
where R⁶ is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy; and

-L-M- represents the group



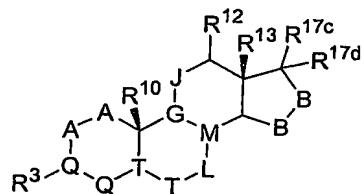
where R^7 is selected from the group consisting of hydrogen, halo, hydroxy, protected hydroxy, alkyl, cycloalkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano, aryloxy, heteroaryl, heterocyclyl, acetylthio, furyl and substituted furyl;
the process comprising:

carbonylating a 17-vinyl-17-hydroxy steroid compound of Formula 2502:



where the substituents R^3 , R^{10} , R^{12} , R^{13} , $-A-A-$, $-B-B-$, $-G-J-$, $-Q-Q-$, $-T-T-$ and $-L-M-$ are as defined in Formula 2503.

8. A compound of Formula:



wherein:

R^3 is selected from the group consisting of hydrogen, hydroxy, alkoxy, hydroxyalkyl, alkoxyalkyl and hydroxycarbonyl;

R^{10} , R^{12} , and R^{13} are independently selected from the group consisting of hydrogen, halo, hydroxy, lower alkyl, lower

alkoxy, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, cyano, and aryloxy;

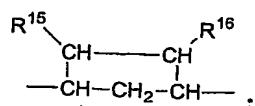
R^{17c} is selected from the group consisting of hydroxy and protected hydroxy; and

R^{17d} is alkenyl;

-A-A- represents the group $-CHR^1-CHR^2-$ or $-CR^1=CR^2-$;

where R^1 and R^2 are independently selected from the group consisting of hydrogen, halo, hydroxy, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, cyano, and aryloxy, or R^1 and R^2 together with the carbons of the steroid backbone to which they are attached form a cycloalkyl group;

-B-B- represents the group $-CHR^{15}-CHR^{16}-$ or an α - or β - oriented group:



where R^{15} and R^{16} are independently selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano, and aryloxy;

-G-J- represents the group $>C=CR^{11}-$;

where R^{11} is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy;

-Q-Q- represents the group $>C=CR^4-$;

where R^4 is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy;

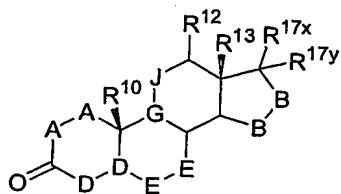
-T-T- represents the group $>C=CR^6-$;

where R^6 is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy; and

-L-M- represents the group $-\text{CH}_2\text{R}^7\text{CH}_2-$;

where R^7 is selected from the group consisting of hydrogen, halo, alkyl, cycloalkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano, aryloxy, acetylthio, furyl and substituted furyl.

9. A compound of Formula:



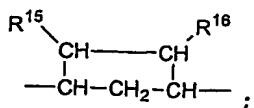
wherein:

R^{10} , R^{12} , and R^{13} are independently selected from the group consisting of hydrogen, halo, hydroxy, lower alkyl, lower alkoxy, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, cyano, and aryloxy;

-A-A- represents the group $-\text{CHR}^1\text{CH}_2\text{R}^2-$ or $-\text{CR}^1=\text{CR}^2-$;

where R^1 and R^2 are independently selected from the group consisting of hydrogen, halo, hydroxy, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, cyano, and aryloxy, or R^1 and R^2 together with the carbons of the steroid backbone to which they are attached form a cycloalkyl group;

-B-B- represents the group $-\text{CHR}^{15}\text{CH}_2\text{R}^{16}-$ or an α - or β -oriented group:



where R¹⁵ and R¹⁶ are independently selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano, and aryloxy;

R^{17x} is selected from the group consisting of hydroxy and protected hydroxy; and

R^{17y} is alkenyl or alkynyl;

-D-D- represents the group $\text{---CR}^4=\text{C}\backslash\text{---}$ or $\text{---CHR}^4-\text{CR}^5\backslash\text{---}$;

where R⁴ is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy or R⁴ and R⁵ together with the carbons of the steroid backbone to which they are attached form a cycloalkyl group;

-G-J- represents the group $\text{>C=CR}^{11}\text{---}$;

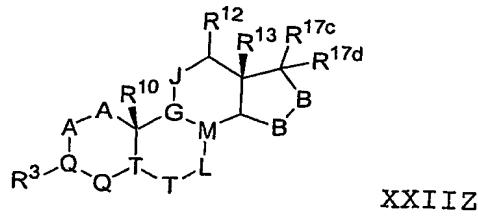
where R¹¹ is selected from the group consisting of hydrogen, hydroxy, protected hydroxy, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy;

-E-E- represents the group $\text{---CR}^6=\text{CR}^7\text{---}$ or $\text{---CHR}^6-\text{CHR}^7\text{---}$;

where R⁶ is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy; and

R⁷ is selected from the group consisting of hydrogen, halo, alkyl, cycloalkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano, aryloxy, acetylthio, furyl and substituted furyl.

10. A process for the preparation of a compound of Formula XXIIIZ:



wherein:

R^3 is selected from the group consisting of hydrogen, hydroxy, alkoxy, hydroxylalkyl, alkoxyalkyl and hydroxycarbonyl; dihydrocarbylamino, di(substituted hydrocarbyl) amino, and N-hetero-cyclyl;

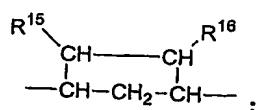
R^{10} , R^{12} , and R^{13} are independently selected from the group consisting of hydrogen, halo, hydroxy, lower alkyl, lower alkoxy, hydroxylalkyl, alkoxyalkyl, hydroxycarbonyl, cyano, and aryloxy;

R^{17c} is selected from the group consisting of hydroxy and protected hydroxy;

R^{17d} is alkenyl;

-A-A- represents the group $-\text{CHR}^1-\text{CHR}^2-$ or $-\text{CR}^1=\text{CR}^2-$;
where R^1 and R^2 are independently selected from the group consisting of hydrogen, halo, hydroxy, alkyl, alkoxy, acyl, hydroxylalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxy carbonyl, cyano, and aryloxy, or R^1 and R^2 together with the carbons of the steroid nucleus to which they are attached form a (saturated) cycloalkylene group;

-B-B- represents the group $-\text{CHR}^{15}-\text{CHR}^{16}-$, $-\text{CR}^{15}=\text{CR}^{16}-$ or an α - or β -oriented group:



where R^{15} and R^{16} are independently selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxylalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxy carbonyl, acyloxyalkyl, cyano, and aryloxy;

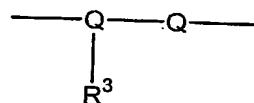
or R¹⁵ and R¹⁶, together with the C-15 and C-16 carbons of the steroid nucleus to which they are attached, form a (saturated) cycloalkylene group;

-G-J- represents the group $\text{>c=CR}^{11}\text{--}$;

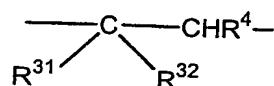
where R¹¹ is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy;

-Q-Q- represents the group $\text{>c=CR}^4\text{--}$;

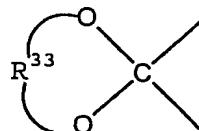
where R⁴ is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy; or



together represent the group



where R³¹ and R³² are independently selected from the group consisting of hydroxy and alkoxy, or R³¹, R³² and the C-3 carbon of the steroid nucleus to which they are attached from the group



where R³³ is alkylene.

-T-T- represents the group $\text{>c=CR}^6\text{--}$;

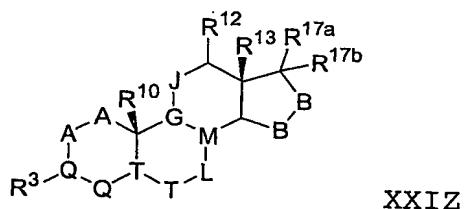
where R^6 is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy; and

-L-M- represents the group $\text{---CH}R^7\text{---CH}\begin{array}{l} \diagup \\ \diagdown \end{array}$;

where R^7 is selected from the group consisting of hydrogen, halo, alkyl, cycloalkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano, aryloxy, acetylthio, furyl and substituted furyl;

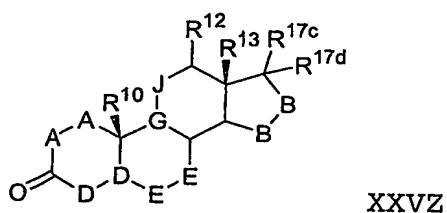
or R^6 and R^7 , together with the C-6 and C-7 carbons of the steroid nucleus to which they are attached, form a (saturated) cycloalkylene group;

the process comprising reducing the 17-alkynyl group of a compound of Formula XXIZ, said compound of Formula XXI having the structure:



wherein R^3 , R^{10} , R^{12} , R^{13} , -A-A-, -B-B-, -G-J-, -Q-Q-, -T-T-, and -L-M- are as defined above, and R^{17a} is selected from the group consisting of hydroxy and protected hydroxy; and R^{17b} is alkynyl.

11. A process for the preparation of a compound of Formula XXVZ:

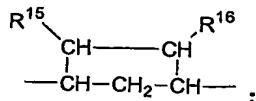


wherein:

R^{10} , R^{12} , and R^{13} are independently selected from the group consisting of hydrogen, halo, hydroxy, lower alkyl, lower alkoxy, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, cyano, and aryloxy;

-A-A- represents the group $-CHR^1-CHR^2-$ or $-CR^1=CR^2-$;
where R^1 and R^2 are independently selected from the group consisting of hydrogen, halo, hydroxy, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxy carbonyl, cyano, and aryloxy, or R^1 and R^2 together with the carbons of the steroid nucleus to which they are attached form a (saturated) cycloalkylene group;

-B-B- represents the group $-CHR^{15}-CHR^{16}-$, $-CR^{15}=CR^{16}-$ or an α - or β -oriented group:



where R^{15} and R^{16} are independently selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxy carbonyl, acyloxyalkyl, cyano, and aryloxy;

or R^{15} and R^{16} , together with the C-15 and C-16 carbons of the steroid nucleus to which they are attached, form a (saturated) cycloalkylene group;

R^{17c} is selected from the group consisting of hydroxy and protected hydroxy; and

R^{17d} is alkenyl;

-D-D- represents the group $-CR^4=C<$ or $CHR^4-CR^5<$;

where R^4 is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxy carbonyl, acyloxyalkyl, cyano and aryloxy or R^4 and R^5 together with the carbons of the steroid backbone to which they are attached form a cycloalkyl group;

-G-J- represents the group $\text{>C}=\text{CR}^{11}-$ or $\text{CHR}^4-\text{CR}^5\backslash$;

where R^{11} is selected from the group consisting of hydrogen, hydroxy, protected hydroxy, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy; and

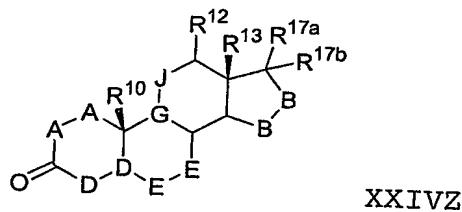
-E-E- represents the group $-\text{CR}^6=\text{CR}^7-$ or $-\text{CHR}^6-\text{CHR}^7-$;

where R^6 is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy; and

R^7 is selected from the group consisting of hydrogen, halo, alkyl, cycloalkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano, aryloxy, acetylthio, furyl and substituted furyl;

or R^6 and R^7 , together with the C-6 and C-7 carbons of the steroid nucleus to which they are attached, form a (saturated) cycloalkylene group;

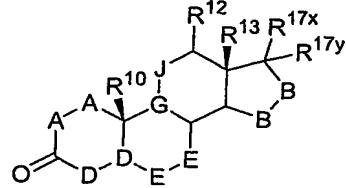
the process comprising reducing the 17-alkynyl group of a compound of Formula XXIVZ with a source of hydrogen, said compound of Formula XXIVZ having the structure:



wherein R^{10} , R^{12} , R^{13} , -A-A-, -B-B-, -D-D-, -G-J-, and -E-E- are as defined above; R^{17a} is selected from the group consisting of hydroxy and protected hydroxy; and

R^{17b} is alkynyl.

12. A compound corresponding to Formula

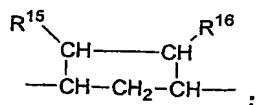


wherein R¹⁰, R¹² and R¹³ are independently selected from the group consisting of hydrogen, halo, hydroxy, lower alkyl, lower alkoxy, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, cyano, and aryloxy;

-A-A- represents the group -CHR¹-CHR²- or -CR¹=CR²-;

where R¹ and R² are independently selected from the group consisting of hydrogen, halo, hydroxy, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, cyano, and aryloxy, or R¹ and R² together with the carbons of the steroid nucleus to which they are attached form a (saturated) cycloalkylene group;

-B-B- represents the group -CHR¹⁵-CHR¹⁶- , -CR¹⁵=CR¹⁶- , or an α - or β -oriented group:



where R¹⁵ and R¹⁶ are independently selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano, and aryloxy, or R¹⁵ and R¹⁶, together with the C-15 and C-16 carbons of the steroid nucleus to which they are respectively attached, form a cycloalkylene group;

-D-D- represents the group -CR⁴=C< or CHR⁴-CR⁵<;

where R⁴ is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy or R⁴ and R⁵ together with the carbons of the steroid backbone to which they are attached form a cycloalkyl group;

wherein R¹⁰, R¹² and R¹³, are independently selected from the group consisting of hydrogen, halo, hydroxy, lower alkyl, lower alkoxy, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, cyano, and aryloxy;

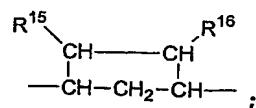
R^{17x} is hydroxy or protected hydroxy;

R^{17y} is alkenyl or alkynyl;

-A-A- represents the group -CHR¹-CHR²- or -CR¹=CR²-;

where R¹ and R² are independently selected from the group consisting of hydrogen, halo, hydroxy, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, cyano, and aryloxy, or R¹ and R² together with the carbons of the steroid nucleus to which they are attached form a (saturated) cycloalkylene group;

-B-B- represents the group -CHR¹⁵-CHR¹⁶-, -CR¹⁵=CR¹⁶ or an α- or β-oriented group:



where R¹⁵ and R¹⁶ are independently selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano, and aryloxy;

or R¹⁵ and R¹⁶, together with the C-15 and C-16 carbons of the steroid nucleus to which they are respectively attached, form a (saturated) cycloalkylene group;

-D-D- represents the group $-CR^4=C\backslash$ or $-CHR^4-CR^5\backslash$;

where R⁴ is selected from the group consisting of hydrogen, halo, alkyl, alkoxy, acyl, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, alkoxycarbonyl, acyloxyalkyl, cyano and aryloxy or R⁴ and R⁵ together with the carbons of the